

THE DEVELOPMENT OF AN ASSESSMENT FRAMEWORK FOR
VOCATIONAL EDUCATION TRAINING PROGRAMMES IN THE NOSS
BASED TRAINING SYSTEM (NBTS) AND THE NATIONAL DUAL TRAINING
SYSTEM (NDTS)

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ABSTRAK

Terdapat dua sistem latihan kemahiran di Malaysia, iaitu Sistem Latihan Berasaskan NOSS (NBTS) dan Sistem Latihan Dual Nasional (SLDN). Walaupun kedua-dua sistem mempunyai pendekatan latihan dan penilaian yang berbeza, sistem ini menghasilkan pekerja mahir negara dengan pensijilan yang sama iaitu Sijil Kemahiran Malaysia (MSC). Bagi mengurus dan memantau kedua-dua sistem serentak, sistem penilaian yang seragam perlu bagi memastikan latihan yang diberikan adalah cekap dan berkesan dalam menghasilkan k-pekerja yang cekap dan mempunyai kebolehkeraan yang tinggi. Oleh itu objektif kajian ini adalah untuk membangunkan satu kerangka penilaian yang komprehensif untuk kedua-dua sistem latihan kemahiran sebagai panduan kepada personel yang terlibat dalam menjalankan latihan kemahiran. Kajian ini menggunakan pendekatan kaedah gabungan. Kaji selidik, temubual berstruktur dan jadual pemetaan daripada analisis dokumen adalah instrumen untuk mengumpul maklumat mengenai dimensi penilaian daripada sampel seramai 269 personel dari pusat bertauliah dan agensi-agensi yang menjalankan latihan samada menggunakan pendekatan SLDN dan atau pendekatan NBTS. Beberapa teknik statistik digunakan untuk menganalisis data: statistik deskriptif (kekerapan, min, sisihan piawai dan peratus) digunakan untuk menjelaskan responden profil; Penerokaan Analisis Factor (EFA) telah digunakan untuk menentukan dimensi kerangka penilaian dan ini disahkan oleh Parallel Analisis (PA) dan Minimum Sederhana Separa (MAP); deskriptif EFA telah digunakan untuk membangunkan model rangka kerja penilaian dan model ini telah disahkan oleh Structural Equation Modeling (SEM). Terdapat tiga hasil daripada kajian. Pertama, kedua-dua sistem dianggap sama walaupun terdapat perbezaan dalam beberapa sub dimensi. Dari penemuan ini, satu kerangka penilaian telah dibangunkan untuk NBTS dan NDTs dengan menyediakan cirian khas untuk dimensi yang berbeza. Kedua, enam dimensi rangka kerja penilaian telah dikenal pasti dan satu kerangka penilaian bagi kedua-dua sistem telah dibangunkan. bagi memastikan kualiti penilaian latihan kemahiran di pusat bertauliah mencapai standard kemahiran antarabangsa.

ABSTRACT

There are two skills training systems in Malaysia, namely NOSS Based Training System (NBTS) and National Dual Training System (NDTS). Although both systems have different training and assessment approaches, both systems produce national skilled workers with the same certification known as the Malaysian Skills Certificate (MSC). In order to manage and monitor both systems concurrently, a standardised assessment system need to be in place to ensure that the training given is efficient and effective in producing competent and employable k-workers. Therefore, the objective of the study was to develop a comprehensive assessment framework for both skill training systems as guidance to those personnel who are involved in conducting skill training. This study used mixed method mode approach and utilised structured interview, questionnaire and mapping table from document analysis as data collection instruments to gather information on the dimension of assessment. The sample of the study constituted 269 personnel from accredited centers and agencies which conduct NDTS or/and NBTS approaches. Several statistical techniques were used to analyse the data: descriptive statistics (frequency, mean, standard deviation and percentage) was used to explain the respondents profile; Exploratory Factor Analysis (EFA) was used to determine the dimension of the assessment framework and this was validated by Parallel Analysis (PA) and the Minimum Average Partial (MAP) test; descriptive from the EFA was used to develop a model of assessment framework and this model was validated by the use of Structural Equation Modeling (SEM). There were three outcomes from the study. Firstly, both systems NBTS and NDTS were considered similar although some of the sub dimensions were not. From this finding, a common assessment framework was developed for NBTS and NDTS approaches with special treatment for the differences. Secondly, six dimensions of assessment framework were identified, and finally an assessment framework for both systems was developed. The developed assessment framework will ensure whether the quality of assessment in the accredited center achieves the international skill standard.

APPRECIATION

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PTTA UTHM
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LIST OF ABBREVIATION

AERA	American Educational Research Association
ADTEC	Advance Technology Center
ANTA	Australian National Training Authority
APA	Accreditation of Prior Achievement
AOL	Action Oriented Learning
AQF	Australian Qualification Framework
AQF	Qualification and Credit Framework
AQTF	Australian Quality Training Framework
AT	Apprenticeship Training
CWP	Core Work Processes
CC	Core Curricula
COS	Course of Study
CU	Competency Unit
CRT	Criterion-Referenced Test
CBA	Competency Based Assessment
CTE	Career and Technical Education
DSP	Dual Training System Project
DACUM	Developing A Curriculum
DEST	Department of Education, Science and Training
DSD	Department of Skills Development
DTS	Dual Training System (DTS)
GLC	Government Linked Organization
HRD	Human Resource Department
ITI	Industrial Training Institutes
ITAB	Industry Training Advisory Bodies
ILB	Industry Lead Body
ITP	Industry Training Packages
JMTI	Japan Malaysian Training Institute

LG	Learning Guide
LWA	Learned and Work Assignment
MoHE	Ministry of Higher Education
MoA	Ministry of Agriculture
MoYS	Ministry of Youth and Sports
MTUN	Malaysian Technical University Network
MCE	Malaysian Certificate of Education
MSC	Malaysia Skills Certificate
MSD	Malaysian Skills Diploma
MSAD	Malaysian Skills Advanced Diploma
MQF	Malaysian Qualification Framework
MoHR	Ministry of Human Resource
MoE	Ministry of Education
NCME	National Council on Measurement in Education
NITTCB	National Industrial Training Trade Certificate Board
NSQF	National Skills Qualification Framework
NRT	Norm-Referenced Test
NOSS	National Occupational Skills Standard
NIER	National Industry Expert Registry
NCVER	National Centre for Vocational Education Research
NMIT	Northern Melbourne Institute of TAFE
NVQ	National Vocational Qualifications
NITTCB	National Industrial Training Trade Certificate Board
NDTS	National Dual Training System
NVTC	National Vocational Training Council
OA	Occupational Analysis
OCWP	Occupational Core Work Process
OE	Occupational Education
PTQF	Philippines Training Qualification Framework
PVE	Professional and Vocational Education

PC	Performance Certificate
PTQF	Philippines Training Qualification Framework
QCA	Quality and Curriculum Authority
RTO	Registered Training Organization
RPL	Recognition of Prior Learning
SQ	Scottish Quality
SME	Small and Medium Enterprises
SDAC	Skills Development Advisory Committee
SDFC	Skills Development Fund Corporation
SCID	Systematic Curriculum and Instruction Development
SRL	Self Reliance Learning
TVET	Technical and Vocational Education and Training
TVE	Technical-Vocational Education
TE	Technical Education
TAFE	Technical and Further Education
TAC	Technical Advisory Committee
TESDA	Technical Education and Skills Development Authority
UNESCO	United National Educational, Science and Cultural Organization
UniKL	Kuala Lumpur University
UTHM	University Tun Hussein Onn of Malaysia
UTEM	University Technical of Malacca
UMP	University Malaysia Pahang
UniMAP	University Malaysia Perlis
VET	Vocational Education and Training (VET)
VE	Vocational Education
WE	Workforce Education

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter presents an overview of Technical and Vocational Education and Training (TVET) in Malaysia and focuses on two approaches of skills training in Malaysia namely; NOSS based Training System (NBTS) and National Dual Training system (NDTS) which are coordinated and monitored by the Department of Skills Development (DSD)). This chapter also describes the problem statement, aim and purpose of the study, research questions, significance of the study, scope, assumption, conceptual and research framework as well as the various operational definitions used in the research.

1.1.1 An Overview of TVET System

TVET is concerned with the acquisition of knowledge and skills for the world of work. Throughout the course of history various terms have been used to describe the elements of the field such as *Apprenticeship Training*, *Vocational Education*, *Technical Education*, *Technical-Vocational Education(TVE)*, *Occupational Education (OE)*, *Vocational Education and Training (VET)*, *Professional and Vocational Education (PVE)*, *Career and Technical Education (CTE)*, *Workforce Education (WE)* and *Workplace Education (WE)* are now conceived as comprising of TVET. Several of these terms are commonly used in specific geographic areas in United National Educational, Scientific and Cultural Organisation (UNESCO) countries. The clarification of TVET

that includes its definition, purpose, and the mission are described in the following paragraphs.

TVET is known to embrace the concept of technical education and vocational training. In terms of specific education, it attempts to prepare students for the world of work; Wenrich & Wenrich (1974) described the TVET system as follows:

Vocational education can be described as a specific branch of education focused mainly on preparing its students for the world of work that is specialized, family business or simply to upgrade their current skills (pg 16).

In the world of work and workers, the TVET system includes semi-skilled, skilled, high level technicians or industrial supervisors. Besides preparing its students for the world of work, TVET plays an important role in facilitating education and training for individuals to embark on continuous (lifelong) learning (Wenrich & Wenrich, 1974).

Cantor (1989) stated that the TVET system can be defined as education that facilitates learning program most relevant to work and thus focuses on equipping its students with skills that are suitable and according to the requirements of the profession. Corson (1993) further explained that TVET assists individuals to actively understand the world of work that the industry and workplace constantly require.

The United National Educational, Scientific and Cultural Organisation (UNESCO) and International Labour Organisation (ILO) (2002) defined TVET as a research effort in the field of science and technology aimed at providing individuals with practical skills, attitude and understanding towards specific professions as narrated below:

...technology research relating to knowledge, skill development, work ethic and practical understanding towards work in the economic and social sectors (pg 7).

Gray and Herr (1998) lent the words Workforce Education TVET system, and offered the following definition:

Workforce education caters for students at pre graduate level organized by various institutions, corporate bodies, or government organizations whose objective is to provide them (students) better chance at acquiring job opportunities or simply to solve their skills deficiency at workplace.
(pg. 4)

The above definition literally suggests that TVET does not necessarily deal with only kinetic or psychomotor or hands-on capability, but also caters to wider competency areas that support efficiency and effectiveness at the workplace. Thus, TVET deals with all work domains that prepares individuals to contribute effectively at a workplace Finch & Crunkilton, 1999; Wenrich & Wenrich, 1974).

According to Evans and Herr (1978), the objectives of TVET are: (1) to cater for the need of work as required by society. (2) to provide work options for its students and (3) to motivate workplace learning among the learners. Thorogood (1992) further added that the objectives of TVET are: (1) to develop the apprentices with the needed work skills that will continue to help and support their life, (2) to assist the apprentices in securing their choice profession by providing them with the skills that are required by the job, (3) to train the skilled workers needed for the development of an industry, (4) to increase the productivity of an economic sector and (5) to upgrade the life quality of the society.

Basically, TVET seeks to attain two missions, the first is to equip individuals with the skill capability to compete in the job market and to foster the economic development and international competitiveness of the nation by catering for the needs of a highly productive and skilled workforce.

From the definitions, objectives and missions of TVET, it can be seen that there are numerous benefits of hands-on training and learning that an individual gets. This is because developing as well as developed countries must have highly skilled human capital in order to cope with the rapid changes of technologies on the global scale. In

addition, the countries can reduce its reliance on external labor population by increasing the number of skilled workers internally/locally.

1.1.2 TVET in Malaysia

TVET development in Malaysia started 40 years ago with the establishment of two public institutions in 1964 namely the National Youth Skills Institute (IKBN) Dusun Tua and Industrial Training Institute (ILP) Kuala Lumpur. Currently, more than 500 public TVET institutions provide multiple programmes at all levels of education as shown in Figure 1.1 which shows the chronology of skills training in Malaysia. Continuous promotions of TVET have resulted in an increased intake of students from 113,000 in 2010 to 164,000 in 2013.

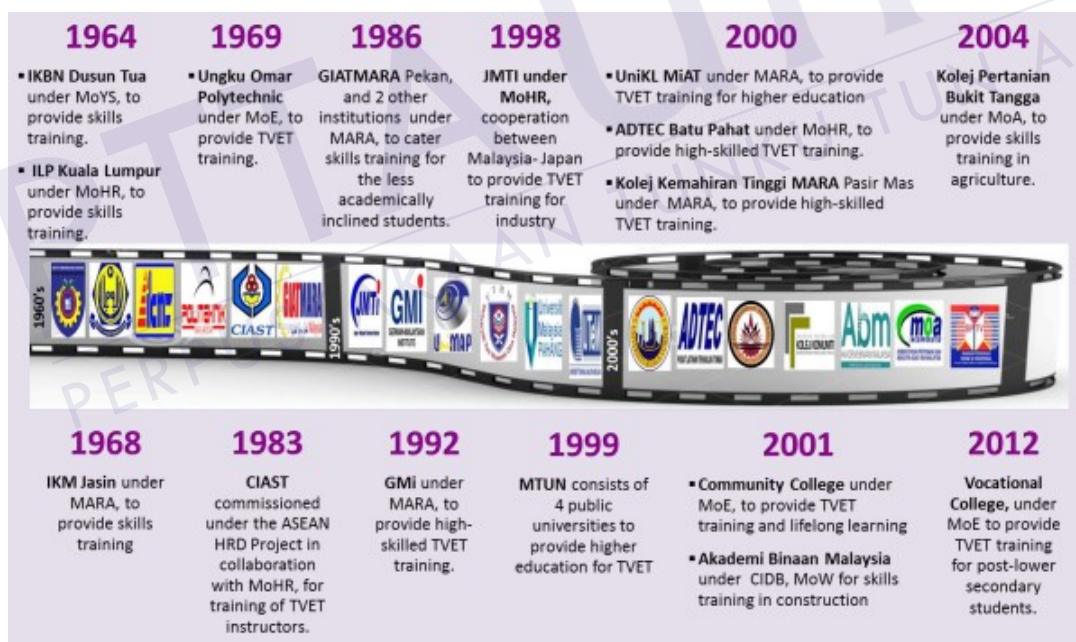


Figure 1.1: Chronology of Skills Training in Malaysia (Sources: Eleven Malaysian Plan (Malaysia, 2015))

In the context of Malaysia's education and training system, '*skills training*' has often been used synonymous with '*vocational training*' or subsumed within the wider notion of '*vocational education and training (VET)*' (Pang,2005). It was only recently

that skills training became an increasingly recognisable and distinct component within the education and training system in Malaysia, rather than merely been regarded as part of the VET component. Based on a review of historical developments in the field of VET in Malaysia, it appears that skills training had emerged as a visible and distinct component of Malaysia's education and training system by the late 1970s.

During the period from the Razak Report of 1956 up to the Cabinet Report of 1979, Othman, (2003) observed that the Malaysian VET system had progressively assumed a distinct structure, which was dominated by three different streams or pathways, distinguishable in terms of producing the country's workforce, namely: higher education; technical and vocational education; and skills training. One was a pathway that led to higher education (thus, called the 'academic' pathway), whilst VET was segregated into two distinct streams namely the technical and vocational education stream, as well as the skills training stream which is the responsibility of the Department of Skills Development (DSD) a department under the Ministry of Human Resource. The skills training stream has two systems of accreditation which are known as NBTS and the NDTs. Both training systems will be described in details later after examining the scenario of involvement and role of the government and industries in Malaysia towards skills training.

In the Tenth Malaysia Plan (10MP), 2011-2015, TVET continues to be considered as critical for supporting the country's economic development. Four policy guidelines have been put forward to mainstream and elevate access to quality TVET in Malaysia: (a) Improving the perception of TVET and attracting more trainees, through more intensive national media campaign; (b) Upgrading and harmonising TVET curriculum quality in line with industry requirements, by initiatives which include standardising TVET curriculum, recognising the national skills qualification, and establishing a new Malaysian Board of Technologists (MBOT) ; (c) Developing highly effective instructors, including to establish a new Centre for Instructor and Advanced Skills Training (CIAST); and (d) Streamlining the delivery of TVET, including to review the current funding approach of TVET and to undertake performance ratings of TVET institutions (Malaysia, (2010)).

During the 10 MP, mainstreaming and broadening access to quality TVET were undertaken to address industry needs for skilled workers. Measures were also undertaken to improve public perception towards TVET. Transforming TVET is one of the game changers in the Eleventh Plan to meet the demand of industry and contribute towards economic growth in view of globalisation, knowledge economy, technology advancement and global labour mobility. Focus will be given to transform the TVET delivery system and increase its attractiveness as a choice for another education pathway. A MBOT will be established to recognise the professionalism of TVET practitioners that will enable them to demand higher wages. The initiative was continued in the 11MP (Malaysia, 2015) where emphasis is given to the transforming TVET to meet industry demand.

1.1.2.1 Malaysian Qualification Framework (MQF)

Malaysian Qualification Framework (MQF) is an instrument that classifies qualifications based on a set of criteria that is approved nationally and at par with the international practices. It clarifies the earned academic levels, learning outcomes of study areas and credit system based on student academic load. These criteria are accepted and used for all qualifications awarded by the recognised higher education providers. Hence, MQF unites and links all national qualifications. MQF also provides educational pathways in which it links qualifications systematically. MQF has three sectors. They are skills, technical & vocational, and higher education. Lifelong learning is the pathways which enable individuals to progress towards higher education through the transfer of credits and accreditation of prior learning, from the formal, informal and non formal education without taking into account the time and place (MQA Malaysia 2006). All the sectors are bounded with the eight levels as shown in the figure 1.2.

Referring to the MQF qualifications, TVET involves the two sectors which are skills and vocational and training which produce the Skills Certificate, Diploma and Advanced diploma. Skills Certificate for Level 1-3 are conferred as a formal recognised certificate for individuals who have shown capabilities that are acquired or practiced

with competencies to carry out a task or work which usually is in a form of “manual” skills, and being conferred without considering the way the skills were acquired.

MQA Level	Sector			Lifelong Learning
	Skills	Technical and Vocational	Higher Education	
8			Doctoral Degree	Accreditation for Prior Experiential Learning
7			Master's Degree	
			Postgraduate Certificate & Diploma	
7			Bachelor Degree	
6			Graduate Certificate and Diploma	
5	Skills Advance Diploma	Advance Diploma	Advance Diploma	
4	Skills Diploma	Diploma	Diploma	
3	Skills Certificate 3	Vocational and Technical Certificate	Certificate	
2	Skills Certificate 2			
1	Skills Certificate 1			

Figure 1.2: Qualifications in MQF According to Education and Training Sectors (MQA, Malaysia 2006)

The criteria and standards for Skills Certificate are known as National Occupational Skills Standard (NOSS) and it was developed by the National Vocational Training Council (NVTC) which is also known as the Department of Skills Development (DSD) since 2006 under the Ministry of Human Resource. NOSS is a document that outlines the competencies that should be possessed by skilled workers in Malaysia for a specific field and level of occupation. The criteria and Standard for Skills Certificate are being articulated with higher level qualifications to enable holders progress from the level of semi skills, to skilled workers, right up to supervisory, executive and managerial functions.

Diploma in Technical & Vocational and Skills encompasses capabilities and responsibilities that are wide-ranging and will lead to a career path. The programmes align theory with practice/practical knowledge and an emphasis on instilling of values,

ethics and attitudes in order to ensure that the students will be able (a) to use the knowledge, b) to evaluate and make decision, (c) to become confident and entrepreneurial in generating their own career (d) to become responsible as a member of society (e) to possess study skills in adapting the ideas, process and new procedures for career development (f) to acquire team skills, to communicate efficiently and to transmit information, ideas, problems and resolutions effectively to experts and non experts alike.

Advanced Diploma is a specific qualification, which recognizes that an individual has knowledge, practical skills, managerial abilities and more complex responsibilities and is higher than what is expected at the diploma levels in the field of undertaken employment.

1.1.2.2 The TVET Player

TVET has always been a government driven initiative in Malaysia since inception. The Malaysian government, however, expects the momentum will eventually become industry driven. Thus, local industries especially the Small and Medium Enterprises (SMEs) are expected to take very active roles in forming their own lead bodies for every sectors which will serve to formulate and continue innovating standards that will guarantee the pushing of their products and services to reach the quality sought after by the international market. Such scenario will ideally position the government for the role of support and in providing infrastructures, systems and processes that will further facilitate and improve the commercial and business expectations and convenience for Malaysian industry owners. The following paragraphs will discuss TVET activities that were mainly initiated by government Ministries and Agencies.

According to 11 MP (Malaysia, 2015) there are seven ministries that oversee public TVET institutions including the processing of entrance applications, which led to multiple applications and duplication of offers. TVET delivery is fragmented as it is offered by Government ministries and their agencies, universities, state skills development centres and privately owned institutions.

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